

WHAT IS CLAIMED IS

1. An illuminated pushbutton switch for soldering to a circuit board, which includes a housing, a pushbutton assembly that is slideable between inward and outward positions on the housing, and a spring that biases the pushbutton assembly outward, wherein:

5           said pushbutton assembly includes a dielectric pushbutton frame having a contacting surface, and a plurality of pushbutton conductors fixed to said frame and having portions lying on said contacting surface;

10           a plurality of housing contacts mounted on said housing and engageable with said pushbutton contacts, said housing contacts having terminal ends for soldering to said circuit board;

          a light having a light-emitting bulb and having a pair of leads extending inward of said bulb;

          said pushbutton conductors include a pair of pushbutton conductors that have outer portions each joined to one of said leads; and

15           said pushbutton assembly includes a dielectric pushbutton depressing element having a through passage that surrounds said bulb, said depressing element having an inner end mounted on said pushbutton frame and having an outer end projecting outward of said bulb.

2. The switch described in claim 1 wherein:

          said pushbutton frame includes a frame inner portion that forms said contacting surface;

5           said pushbutton conductors are formed of sheet metal and have conductor inner portions fixed to said contacting surface and have conductor outer portions that are crimped to said leads at locations within said depressing

element.

3. The switch described in claim 2 wherein:

said conductor outer portions lie outward of said pushbutton frame and are bent around axes that extend in inward and outward directions.

4. The switch described in claim 1 wherein:

5 said pushbutton frame has a wide inner portion forming said contacting surface, and said pushbutton frame has a narrower outward extension that is closely surrounded by walls of said depressing element passage inner end portion to prevent said depressing element from tilting on said pushbutton frame, said outward extension having a pair of latch lugs, and said depressing element inner end having a pair of holes that each receives one of said latch lugs to fix said pushbutton element inner end to said pushbutton frame.

5. The switch described in claim 1 wherein:

said pushbutton conductors form a plurality of conductive tracks that are fixed to said pushbutton frame and that slide as said pushbutton frame slides;

5 said housing contacts have fixed contact portions fixed to said housing and have deflectable contact portions biased against said track paths;

said plurality of conductive tracks includes two conductive tracks formed on said pushbutton conductors and connected to said light source and in constant engagement with deflectable contact portions of first and second of said housing contacts;

10 said plurality of conductive tracks includes a first interrupted track that electrically engages a first of said deflectable contact portions in said pushbutton inward position but that has a gap location (118) that does not

electrically engage said first deflectable contact portion in said pushbutton outward position;

15           said plurality of conductive tracks includes a second interrupted track that engages a second of said deflectable contact portions in said pushbutton outward position but that has a gap location (116) that does not electrically engage said second deflectable contact portion in said pushbutton inward position.

6.       The switch described in claim 1 wherein:

5           said housing includes a dielectric main housing portion and a sheet metal cover, said housing contacts being mounted on said main housing portion, said sheet metal cover having tabs crimped to said main housing portion.

7.       An illuminated pushbutton switch for soldering to a circuit board, which includes a housing, a pushbutton assembly that is slideable between inward and outward positions on the housing, and a spring that biases the pushbutton assembly outward, wherein:

5           said pushbutton assembly includes a dielectric pushbutton frame having a frame inner portion with a dielectric contacting surface and a plurality of pushbutton conductors having inner portions fixed to said contacting surface and moving inward and outward along paths as said pushbutton assembly moves inward and outward;

10          a plurality of deflectable contacts having fixed contact portions fixed to said housing and having terminal ends for soldering to said circuit board, said deflectable contacts having deflectable contact portions biased against the paths of different ones of said pushbutton conductors;

15       said pushbutton frame having an outward frame extension, a pair of said pushbutton conductors having middle portion extending through said frame extension, said pair of pushbutton conductors having outward ends that form a pair of crimp portions lying outward of said frame extension;

20       a light having a light-emitting bulb lying outward of said crimp portions and having a pair of leads extending inward of said bulb, said pair of crimp portions each crimped around one of said leads;

      a dielectric pushbutton element having a through passage that surrounds said bulb, said pushbutton element having an inner end mounted on said pushbutton frame and having an outer end projecting outward of said bulb.

8.       The illuminated pushbutton switch described in claim 7 wherein:  
      said through passage of said dielectric pushbutton element has an outer passage portion that is of smaller diameter than said bulb so said bulb cannot pass therethrough.

5       9.       A method for constructing an illuminated pushbutton switch for soldering to a circuit board, the switch including a housing, a plurality of housing conductors mounted on the housing, and a pushbutton assembly that is slideable in inward and outward directions on the housing, the pushbutton assembly including a dielectric pushbutton frame and a plurality of pushbutton conductors mounted on said pushbutton frame and in sliding engagement with said housing conductors, and a light having a light-emitting bulb and a pair of light leads engaged with a pair of said pushbutton conductors, including:

10       forming said pair of pushbutton conductors of sheet metal with outer ends formed as crimp barrels;

      crimping said crimp barrels around said light leads;

15       sliding a dielectric pushbutton element that has a through passage around said light so said bulb is received in said passage, and latching an inner end of said pushbutton element to said pushbutton frame, with an outer end of said pushbutton element extending outward of an outer end of said bulb.

10.    The method described in claim 9 including:  
5       placing said housing on a circuit board that has conductive traces and heating the housing and circuit board to solder contacts on said housing to said traces, said step of heating including placing said housing in an environment of more than 225°C for no longer than one minute, so walls of said pushbutton element reduce heating of said bulb.